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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,089	08/11/2008	Tatsuo Tomomori	TOMOMORI I	7419
1444 7590 12/17/2010 Browdy and Neimark, PLLC 1625 K Street, N.W. Suite 1100 Washington, DC 20006				
EXAMINER				
CULLEN, SEAN P				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/568,089

**Applicant(s)**

TOMOMORI ET AL.

**Examiner**

Sean P. Cullen, Ph.D.

**Art Unit**

1725

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 October 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6,8-12,14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-12,14 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Status of Claims**

1. Claims 1-6, 8-12, 14 and 15 are pending.

### **Examiner Notes**

2. Regarding limitations recited in claim 14, which are directed to method of making a battery case, it is noted that said limitations are not given patentable weight in the product claims. Even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself and does not depend on its method of production. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same or obvious as the product of the prior art, the claim is unpatentable even though the prior art product was made by a different process.). See MPEP § 2113 and § 2114. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

### **Claim Rejections - 35 USC § 102**

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Ohmura et al. (WO 9903161 A, see English language equivalent, U.S. 2003/0077510 A1).

Regarding claim 9, Ohmura et al. ('161) discloses a battery case characterized by having:

- a nickel plating layer formed as an under layer (see lower layer, [0014]) and
- a nickel-phosphorus alloy plating layer formed as a top layer on its inner surface (see upper layer, [0014]).

5. Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Hikata (JP 2000082446 A, see machine translation).

Regarding claim 9, Hikata discloses a battery case (1) characterized by having:

- a nickel plating layer (10) formed as an under layer (Fig. 2) and
- a nickel-phosphorus alloy plating layer (11) formed as a top layer on its inner surface (Fig. 2)

### **Claim Rejections - 35 USC § 103**

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1-2, 5-6, 8, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hikata (JP 2000082446 A, see machine translation) in view of Soejima et al. (JP 54145335 A, see English language equivalent).

Regarding claim 1, Hikata discloses a surface treated steel sheet for a battery case (Fig. 2) comprising:

- a steel sheet (9); and

- a nickel-phosphorus alloy plating layer (11) formed on its surface which defines the inner surface of the battery case (Fig. 2),

Hikata does not explicitly disclose a surface treated steel sheet:

- wherein the nickel-phosphorus alloy plating layer contains 5 to 70% by weight of cobalt.

Soejima et al. discloses a surface treated steel sheet is plated with a nickel-cobalt-phosphorus layer (abstract) wherein the nickel-phosphorus alloy plating layer contains 5 to 70% by weight of cobalt (see Ni-Co-P, Table 1; 72 wt% Ni, 20 wt% Co, 8 wt% P; 36 wt% Ni, 60 wt% Co, 4 wt% P) to raise the corrosion resistance and hardness without damaging the properties of the steel sheet (abstract). Hikata and Soejima et al. are analogous art because they are directed to the plating of steel sheets. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the surface treated steel sheet of Hikata with the nickel-phosphorus alloy plating layer of Soejima et al. to raise the corrosion resistance and hardness without damaging the properties of the steel sheet.

Regarding claim 2, modified Hikata discloses all claim limitations set forth above and further discloses a surface treated steel sheet:

- a nickel plating layer (10) formed between the steel sheet (9) and
- a nickel-phosphorus alloy plating layer (11).

Regarding claim 5, modified Hikata discloses all claim limitations set forth above and further discloses a surface treated steel sheet:

- wherein the nickel-phosphorus alloy plating layer has a thickness in the range of 0.1 to 2  $\mu\text{m}$  [0010].

Regarding claim 6, modified Hikata discloses all claim limitations and further discloses a surface treated steel sheet:

- wherein the nickel-phosphorus alloy plating layer (11) has a phosphorus content in the range of 1 to 12% by weight [0010].

Regarding claim 8, Hikata discloses a battery case (1) comprising:

- a nickel-phosphorus alloy (11) plating layer formed on its inner surface (Fig. 2),

Hikata does not explicitly disclose a battery case:

- wherein the nickel-phosphorus alloy plating layer contains 5 to 70% by weight of cobalt.

Soejima et al. discloses a surface treated steel sheet is plated with a nickel-cobalt-phosphorus layer (abstract) wherein the nickel-phosphorus alloy plating layer contains 5 to 70% by weight of cobalt (see Ni-Co-P, Table 1; 72 wt% Ni, 20 wt% Co, 8 wt% P; 36 wt% Ni, 60 wt% Co, 4 wt% P) to raise the corrosion resistance and hardness without damaging the properties of the steel sheet (abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the battery case of Hikata with the nickel-phosphorus alloy plating layer of Soejima et al. to raise the corrosion resistance and hardness without damaging the properties of the steel sheet.

Regarding claim 12, modified Hikata discloses all claim limitations set forth above and further discloses a battery case:

- wherein the nickel-phosphorus alloy plating layer (11) has a phosphorus content in the range of 1 to 12% by weight [0010].

Regarding claim 15, Hikata discloses a battery (Fig. 1) characterized by employing:

- a battery case (1) comprising
  - a nickel-phosphorus alloy (11) plating layer formed on its inner surface (Fig. 2), and
- packing its interior with cathode (3) and anode active materials (2, Fig. 1)

Hikata does not explicitly disclose a battery:

- wherein the nickel-phosphorus alloy plating layer contains 5 to 70% by weight of cobalt.

Soejima et al. discloses a surface treated steel sheet is plated with a nickel-cobalt-phosphorus layer (abstract) wherein the nickel-phosphorus alloy plating layer contains 5 to 70% by weight of cobalt (see Ni-Co-P, Table 1; 72 wt% Ni, 20 wt% Co, 8 wt% P; 36 wt% Ni, 60 wt% Co, 4 wt% P) to raise the corrosion resistance and hardness without damaging the properties of the steel sheet (abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the battery of Hikata with the nickel-phosphorus alloy plating layer of Soejima et al. to raise the corrosion resistance and hardness without damaging the properties of the steel sheet.

8. Claim 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hikata (JP 2000082446 A, see machine translation) in view of Soejima et al. (JP 54145335 A, see English language equivalent) as applied to claim 1 above, and further in view of Ohmura et al. (WO 0213289 A1, see English language equivalent, U.S. 2004/0005499 A1).

Regarding claim 3, modified Hikata discloses all claim limitations set forth above and further discloses a surface treated steel sheet:

- further comprising a nickel layer (10) formed between the steel sheet (9) and the nickel-phosphorus alloy plating layer (11, Fig. 2).

Ohmura et al. ('161) does not explicitly disclose:

- wherein the nickel layer is an iron-nickel diffusion layer

Ohmura et al. ('289) discloses a surface-treated steel sheet for a battery case (abstract) comprising an iron-nickel diffusion layer between the steel sheet and the nickel plating layer [0009] to improve the runnability of the cases irrespective of the formation method of the battery case [0020]. Hikata and Ohmura et al. ('289) are analogous art because they are directed to surface treated steel sheets used for battery cases. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the surface treated steel sheet of modified Hikata with a iron-nickel diffusion layer of Ohmura et al. ('289) to improve the runnability of the cases irrespective of the formation method of the battery case.

Regarding claim 4, modified Hikata discloses all claim limitations set forth above and further discloses a surface-treated steel sheet:

- further comprising a nickel layer (10) formed between the steel sheet (9) and the nickel-phosphorus alloy plating layer (11, Fig. 2);
- the nickel layer (10) is formed as an intermediate layer (Fig. 2).

Hikata does not explicitly disclose:

- further comprising an iron-nickel diffusion layer between the steel sheet and the nickel-phosphorous alloy plating layer;
- wherein the iron-nickel diffusion layer is formed as an under layer



Ohmura et al. ('289) discloses a battery case comprising an iron-nickel diffusion layer (see iron-nickel diffusion layer, [0011]) and a nickel layer (see nickel layer, [0011]) formed between the steel sheet (see surface-treated steel plate, [0009]) and a nickel alloy plating layer (see nickel layer, [0011]); wherein the iron-nickel diffusion layer is formed as an under layer (see lower layer, [0011]) and the nickel layer is formed as an intermediate layer (see intermediate layer, [0011]) to improve the runnability of the cases irrespective of the formation method of the battery case [0020]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the surface-treated steel sheet of modified Hikata with a iron-nickel diffusion layer of Ohmura et al. ('289) to improve the runnability of the cases irrespective of the formation method of the battery case.

9. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmura et al. (WO 0213289 A1, see English language equivalent, U.S. 2004/0005499 A1) in view of Ohmura et al. (WO 9903161 A1, see English language equivalent, U.S. 2003/0077510 A1).

Regarding claim 10, Ohmura et al. ('289) discloses a battery case [0011] comprising:

- an iron-nickel diffusion layer formed as an under layer [0009] and
- a nickel plating layer formed as a top layer on its inner surface [0009].

Ohmura et al. ('289) does not explicitly disclose:

- the nickel plating layer is a nickel-phosphorus alloy plating layer

Ohmura et al. ('161) discloses a battery case having a nickel layer formed as an under layer [0014] and a nickel-phosphorus alloy plating layer as a top layer on its inner surface [0014] to increase the corrosion resistance of the inside surface of the battery case [0036]. Ohmura et

al. ('289) and Ohmura et al. ('161) are analogous art because they are directed to surface treated steel sheets used for battery cases. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the nickel plating layer in the battery case of Ohmura et al. ('289) with the nickel-phosphorus alloy plating layer of Ohmura et al. ('161) to increase the corrosion resistance of the inside surface of the battery case.

Regarding claim 11, Ohmura et al. ('289) discloses a battery case [0011] comprising:

- an iron-nickel diffusion layer formed as an under layer [0011],
- a nickel layer as an intermediate layer [0011] and
- a nickel plating layer formed as a top layer on its inner surface [0011].

Ohmura et al. ('289) does not explicitly disclose:

- the nickel plating layer is a nickel-phosphorus alloy plating layer

Ohmura et al. ('161) discloses a battery case having a nickel layer formed as an under layer [0014] and a nickel-phosphorus alloy plating layer as a top layer on its inner surface [0014] to increase the corrosion resistance of the inside surface of the battery case [0036]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the nickel plating layer in the battery case of Ohmura et al. ('289) with the nickel-phosphorus alloy plating layer of Ohmura et al. ('161) to increase the corrosion resistance of the inside surface of the battery case.

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hikata (JP 2000082446 A, see machine translation) in view of Soejima et al. (JP 54145335 A, see English

language equivalent) as applied to claim 8 above, and further in view of Ohmura et al. (WO 9903161 A1, see English language equivalent, U.S. 2003/0077510 A1).

Regarding claim 14, modified Hikata discloses all claim limitations set forth above, but does not explicitly disclose a battery case:

- formed by a deep drawing, DI or DTR method.

Ohmura et al. ('161) discloses a battery case formed by a deep drawing, DI or DTR method ([0118]-[0120]) to decrease the thickness of the battery case [0035]. Hikata and Ohmura et al. ('161) are analogous art because they are directed to surface treated steel sheets used for battery cases. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the battery case of modified Hikata by the methods of Ohmura et al. ('161) to decrease the thickness of the battery case.

### **Response to Arguments**

11. Applicant's arguments with respect to claims 1-6, 8, 12, 14 and 15 have been considered but are moot in view of the new ground(s) of rejection.

12. Applicant's arguments filed October 22, 2010 with respect to claims 3, 7 and 9-11 have been fully considered but they are not persuasive.

Regarding applicants' argument that Ohmura '510 does not disclose or suggest that there is any cobalt in the nickel-phosphorus alloy plating layer (page 8, para. 5), claim 9 does not

recite cobalt in the nickel-phosphorus plating layer. It is noted that the features upon which applicant relies (i.e., cobalt in a nickel-phosphorus plating layer) are not recited in the rejected claim 9. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding applicants' argument that Hikata does not disclose this particular range of cobalt to the inner layer of the battery case (page 9, para. 3), claim 9 does not recite a range of cobalt in the inner layer of the battery case. It is noted that the features upon which applicant relies (i.e., cobalt in an inner layer of a battery case) are not recited in the rejected claim 9. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding applicants' argument that claims 1-4, 10 and 11 all incorporate limitations from amended claims 1 and 8 (page 9, para. 9), only claims 2-4 incorporate the limitations from amended claim 1. Claims 10 and 11 are independent claims and do not incorporate the limitations from amended claim 8.

Regarding applicants' argument that Ohmura '510 and Ohmura '499 do not disclose or suggest that the nickel phosphorous alloy layer contains 5 to 70% by weight of cobalt (page 9, para. 9), claims 10 and 11 do not recite a nickel phosphorous alloy layer contains 5 to 70% by weight of cobalt. It is noted that the features upon which applicant relies (i.e., a nickel phosphorous alloy layer contains 5 to 70% by weight of cobalt) are not recited in the rejected claims 10 and 11. Although the claims are interpreted in light of the specification, limitations

from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding applicants' argument that Soejima discloses a coating for an outer surface (page 10, para. 3), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Hikata discloses a nickel-phosphorus alloy plating layer (11) formed on its surface which defines the inner surface of the battery case (Fig. 2). Soejima discloses that a nickel-phosphorus alloy layer can contain 5 to 70% cobalt (Table 1) to raise the corrosion resistance and hardness without damaging the properties of the steel sheet (abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was to make the nickel-phosphorus alloy plating layer of Hikata with cobalt to raise the corrosion resistance and hardness without damaging the properties of the steel sheet.

Regarding applicants' argument that Soejima is not analogous art with respect to Hikata (page 10, para. 3), Hikata discloses that a nickel-phosphorus alloy plating layer is used to prevent oxidation (i.e., corrosion) and degradation of the battery case (see degradation, [0007]). Soejima discloses that a nickel-phosphorus alloy layer containing cobalt can raise corrosion resistance and hardness without damaging the properties of the steel sheet (abstract). It has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Soejima is reasonably pertinent to

the particular problem with which the applicant was concerned. Soejima is concerned with protecting a steel sheet from corrosion, which is a particular problem with which the applicant was concerned (see 0010 of instant application). Soejima is also in the field of applicant's endeavor. Soejima is in the field of surface-treated steel sheets. Therefore, Soejima is analogous art with respect to Hikata and the applicants.

Regarding applicants' argument that it is difficult to arrange the particular range of cobalt to the inner surface of the battery case (page 10, para. 4), it is noted that "the arguments of counsel cannot take the place of evidence in the record", In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). It is the examiner's position that the arguments provided by the applicant regarding the difficulty of arranging the particular range of cobalt to an inner surface of a battery case must be supported by a declaration or affidavit. As set forth in MPEP 716.02(g), "the reason for requiring evidence in a declaration or affidavit form is to obtain the assurances that any statements or representations made are correct, as provided by 35 U.S.C. 24 and 18 U.S.C. 1001."

Regarding applicants' argument that Soejima treatment is for the outer surface of these tools (page 10, para. 4), it is noted that "the arguments of counsel cannot take the place of evidence in the record", In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). It is the examiner's position that the arguments provided by the applicant regarding the difficulty of combining the teachings of Hikata and Soejima because Soejima discloses treatment for the outer surface of a steel sheet must be supported by a declaration or affidavit. As set forth in MPEP 716.02(g), "the reason for requiring evidence in a declaration or affidavit form is to obtain

the assurances that any statements or representations made are correct, as provided by 35 U.S.C. 24 and 18 U.S.C. 1001."

### **Conclusion**

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Cullen, Ph.D. whose telephone number is 571-270-1251. The examiner can normally be reached on Monday thru Thursday 6:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on 571-272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. P. C./  
Examiner, Art Unit 1725

/Robert Hodge/  
Primary Examiner, Art Unit 1729